ABSTRACT OF THE DISCLOSURE

A QoS monitoring system and method for a DiffServ-capable network element operable in a trusted domain network such as an ISP network. The network element is organized as a plurality of terminating line cards interconnected via a switch fabric capable of supporting virtual ingress/egress pipes (VIEPs). Buffer queues on the ingress and egress sides of the network element, which are established for supporting traffic flows on individual VIEPs, are monitored for determining QoS parametric information such as throughput, loss, delay, jitter and available bandwidth. A policing structure is operably coupled with a buffer acceptance and flow control module for monitoring traffic behavior on the ingress side. Another buffer acceptance/flow control module and aggregate-level monitoring module are disposed on the egress side of the network element that cooperates with a scheduler which shapes outgoing traffic. The monitoring for the PIPE traffic reflects the conformance of the service provider to their customers, whereas the monitoring for the HOSE traffic reflects the level of over- or under-provisioning for a given COS. Feedback flow control is provided between the ingress and egress sides for throttling buffer acceptance.